

Still Alive With Sir Clive!

ZXir QLive Alive!

The Timex/Sinclair North American User Groups Newsletter

Volume 9 No. 2

Summer '99

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Established 1991 The Timex/Sinclair North American User Groups Newsletter

T/SNUG Information

we will support the following platforms: ES/RS/VS, TS/1000, Spectrum, TS/1000, Z80 and QL. If you have any questions about any of these line items, contact the

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ZXir QLive Alive!

Is the newsletter of T/SNUG, the Three-Necked North American User Group, providing news and software support to the T/S community in a **VOLUME** of four newsletters per year, beginning with the Spring 1989 issue.

T/SNUG's main goal is to promote and encourage the use of Sinclair computers

by providing an open forum for the exchange of knowledge, building and maintaining of software libraries. Providing readers, repair service and members with free ad space.

It is the user groups and individual subscribers, rather than the vendors, that provide the primary support for the newsletter. Vendors and developers receive the newsletter free of charge, though contributions from vendors and user groups is greatly accepted. Please support our vendors and service providers whenever possible.

If you have a problem or you have solved a problem, please share it with the rest of us. No problem will be considered proprietary.

Editor/Treasurer

Publisher

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Back copies are available for
\$1.00 each postpaid.

Treasury Notes

As of June 19, 1990, we have a
balance of \$382.21

Article Contributions

Send in your articles by disk, hardcopy or
mail, e-mail and your inputs to —

Abed Kahale

[Email: Abahale@compuserve.com](mailto:Abahale@compuserve.com)

WELCOME

Glen Goodwin

GATOR'S Circular Part

To better inform the Sinclair Community,
these 24-hour-a-day BBSs are now
provided to serve you. You are encouraged to
exchange mail and use the file services of
these boards. Bulletin and ads are available to
all.

Q-Box BBS 819 254-9878

Utica, Michigan

SOL BBS 529 882-0288

Tucson, Arizona

Club BBS 847 632-5868

Artesia Heights, Illinois

[WebPage](http://users.aol.com/clubbbs/tarug/)

[Http://users.aol.com/clubbbs/tarug/](http://users.aol.com/clubbbs/tarug/)

If you know the Internet E-Mail address of a
Sinclair user, but do not have access to Internet,
simply address your E-Mail to GATOR. Similar to
the 24-hour Club BBS and include the name and E-
Mail address of the user you wish to reach. Then
check the Club BBS from time to time if you expect
a reply.

We encourage you to exchange mail and
contribute to the UPLOAD section. Call
and register using your first, last name and phone
number along with a password you won't forget.
What is known? Do not try to do anything like AT
data calls.

When you call in the next time, you will have
Level 1 privileges and be able to logon full screen full
text privilege. The BBS has another section called
conference. Select "1" for "User Conference".
Select "TNSUG" to get into the Sinclair section.
The mail you send and will only be from other T/S users. Use message A/E for article,
ADS for ads and NWPS for news when
UPLOADING.

For help, contact the NYBOP, Bob Sweger, by
leaving a message, mail, E-mail or phone

CENQ004@juno.com

Input/Output

By Fred Kaback

Hello All!

I was talking to Larry Keeley recently and he tells me that he is willing to release all his information on Larken ROMs to the public domain. All he is asking for is a working Timex Sinclair 1000 and the last version of his TSI 2000 ROMs in source. (I assume that both were "lost" during a move.) This is very little to ask for this information and the possibility that a Larken disk access could be built into one of the existing Sinclair emulators such as Carlos Lander's Z80 emulator or the Mamegaia emulator. (Much of my own TSI 2000 software is linked up on Larken formatted diskettes as NMH saves that can not be accessed by any other means.)

Perhaps the best way for anyone who wishes to make an offer of other code would be to write Larry Keeley directly. His e-mail address is larken@interaccess.ca. Just reveal him what the offer is in aid of. There is also a Larken Electronics web site.

Also, for the benefit of those who subscribe to Z80/ but not to the list, you could put an announcement to this effect in the next publication.

David Solly

Hello Larry,

I just got a letter forwarded to me from TSI2000 by Abub Kabak from Dave Solly.
I am Bob Swoger, ----GMATOR---- of GMATOR Software Development - the author of LogCall for the Larken Disk Interface on the TSI2000.

Next time you are surfing the INTERNET check out
<http://members.aol.com/bobswog/> (or see my picture -
you know things you'll never see)
<http://members.aol.com/bobswog/bswog/> (where all North
American Sinclair happens)
<http://members.aol.com/bobswog/chicago/> (our little Chicago
Club)

Let me know what you think about our homepage —
-----GMATOR-----

Hello Abub,

Program listings are best done in a fixed pitch (or more spaced) font like OCR-A or Courier. This is especially true of QL BASIC and Pascal where the indentation is an indication of program flow which is useful for debugging.

People should also be encouraged to use a font in which a 1 (one), does not look like an l (ell), or a 0 (zero) does not look like an O (oh) and so on. It helps reduce the frustration levels of those who are trying to type in and run programs from BBSes.

I think, in the long run, this will also save you a lot of work as well as making Z80 QLive Alive! a consistently high quality newsletter. (Sometimes the participation doesn't come through in the written form of the language. I hope that is coming through in positive suggestions. :))

David Solly

Mr. Swoger

I'm a recently converted ZX-81 user and happened to stumble onto the TSI2000 site. I noticed you have a page Z80 QLlive Alive!

with many items for sale at very reasonable prices. Who should I contact about purchasing some of these items?

Also, please forward TSI2000 membership information so I wish to support groups such as yours who keep the Sinclair line of computers alive. Regards,

Glen Gaudet

Hi All,

Here's another cool article I found on the 'net about the next Sinclair machine:

Jack Boettengen

Linux Targets Sinclair Back Invader **Promises to Undercut PC Market With Linux Machines.**

Inventor and entrepreneur Sir Clive Sinclair is planning a return to the IT market with a low-price portable machine based on Linux and non-x86 chips, writes Robert James Blincoe.

Sinclair believes the product will receive support from the corporate and academic markets because Linux has already secured great loyalty in those sectors.

He claims his proposed machine, which will take two years to come to market, will be built around a cheaper processor than Intel's.

"The standard PC is expensive because of Intel and the software which is demanding of memory," Sinclair said. "The reason why my machine will be cheaper is that it will use a lot less memory, a lower-end processor, a simpler power supply and a lower-cost operating system."

Sinclair says his new machine will be released at less than half the price of other similar-sized PCs on the market. He supports the loyal Linux users who want Windows to be uninstalled from PCs.

"There should be one price for a machine with Microsoft and one price for a machine with Linux," he said.

"Linux looks like a way in - a Trojan Horse," Sinclair continued. "A lot of software suppliers are now supporting it. They wouldn't do that if they didn't have a lot of confidence in it. I think a dedicated Linux machine will be the final step."

22 April 1999, Business Publications Ltd.

Dear Abub,

Peter Liebert-Jacob purchased some TSI magazines from me and because a couple of **CTM** mags were in there that I sent Peter asked if I could give him my "list of" about them? Apparently they were devoted to computers and related. I know nothing about the mag. I wondered if you (or perhaps, one of your readers) might be able to help Peter? Specifically,

Fred Hines

Dear Abub

I recently email-ed you a memo requesting a copy of DAU 3.0. I did get a copy and thank you for your help.

As you can see, I have finally made the jump to the

PC - windows system.

And as you can imagine I have far too many test files to consider printing and thus is saving them into the windows format.

The question then is, Is there a dos/shareware utility that will allow a p.c. to read T32000 Larkas test files?

I do not plan to sell the T32000, but for the sake of convenience would like to be able to read the Larkas diskettes with this p.c. Thank You.

Bob Gorwe bogorw@juno.com

As far as I know, the only way to read T32000 files in a PC is through a ribbon, if you have a T32000 reader that is.

One way is to UPLOAD a file from the 3000 to a BBS for instance and then DOWNLOAD that file by a PC.

Or connect the PC and the 3000 modems together and have one computer UPLOAD or DOWNLOAD to the other computer. A little slow but I have done it in the past. But I will steer you to Robert Swager (Chicago Area Times User Group) robswager@aol.com.

I also have some software names for T32000 that I have gotten in recent purchases. Proline 3000, Tapword 2 and some others. If you want a list I will try to put it before the next edition. I also have T32000 cartridges: Catalogs and States Capitals.

Jack Burwright

Date: Thu, 3 Jun 1999 12:18:31 -0400 (EDT)
From: jburw@juno.com (Bob Gorwe)
Subject: Thanks for ZDJA!

Hello All,

Well, I am finally able to do email. I cannot send or receive attachments, but I can use the mail I received the disk last week with the VQ file on it. I must say that it was in sorry condition. The metal disk cover was so bad that I had to remove it open to get it into a drive. I did manage to put it in, load the file and then I threw it away. Thank you for the disk.

Now, however, you can put whatever you have in or can put into ASCII text format and send it to me as an email letter. It will save a lot of trouble on your part.

Jack Burwright has been keeping me up to date email news. Now I am able to get on his site and jump to other TI pages from there. It is interesting. I do not use windows so the this I am using a DOS program called Comsoft VT and my local library has a Telnet connection to the internet. I can go anywhere and even download files. I just cannot attach things to the mail I send. That is one of the restrictions of the freebsd config.

Well, I will quit for now. Hope to hear from you when the new ZDJA is ready. Later,

Bob Gorwe

To: Bob Swager Larry Sauter
By Pierre John Donaldson
and Phillip Kietlowski
*Thank you very much for the
flowers sent to my wife's funeral.*

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QL Today Notes

by Robert Hartung

The QL Today news items which I send to the ZQX! Editor from time to time are obviously reports on reports and reviews that appear in recent issues of that Newsletter. I don't intend this to be like some of the "talking heads" on TV today who seem to be only reporting on the opinions of other reporters instead of researching the actual news sources. What I'm trying to do here is that I hope these brief reports on QL Today news items will stir up interest among some QL users so they will want to "go to the source" and subscribe to QL Today themselves. It should go without saying that only if there is continued support for those who are supplying information, hardware, software, and services will these things continue to be available, here, as well as overseas.

One factor come into a consideration for not buying their own subscription to QL Today (presently £39.95 or £40) is the difficulty of converting currencies - no problem when pounds is used. The first of the year marked the introduction of the Euro dollar - soon of course it will be used only for electronic transfers and exchanges, not as actual currency. Also, for the time being the UK has opted out of participation with the eleven members of the European community who are on board, so the British pound is still "the coin of the realm" in all transactions made there. Apparently, all this is giving headaches among European QL users as well as those here so making currency conversions, as an English user group has created a new little QLuser-created routine that only requires entering either the value of the Euro or any of the eleven local currencies in order to convert either way a sum free under QPC and MMQTC. It even has a built-in taking along mode that is triggered off by CTRL C.

This routine is included among the programs and images that are on the latest QL Today Cover Disk that comes with each final volume-issue of the newsletter, VOL. 3, No. 6 in this case. All the published images, an annual index of articles, and several of the favorite programs reviewed during the preceding year are also on the 3½" floppy at my-requested file, as well as the UNZIP program.

The current Cover Disk includes an update (v.TUKE4.07) of the code module for TurboToolKit, along

with many other plug-in procedures which utilize the toolkit. Also on the disk is a full version of Mark Knight's E-MAIL (v.2.20), which utilizes Turbo Toolkit and was compiled under the Turbo compiler. This mail-taking-card-tablet-style database program is designed principally for quick and easy access to records such as address books, inventories, etc. and will store and process up to 102367 records. It has a comprehensive and clearly-written manual, stored as ASCII, and has received very positive reviews. It runs fine under QXL or QPC and MMQTC as well as Trami Card or Gold Card expansions of the QL.

A new upgrade of the Paradise wordprocessor is likely to be released as freeware, but beta-testing of it was not yet completed at the time the current Cover Disk was made up; one of the features of this version is that high-resolution screens are used properly, so you may print-large sections if you wish.

In other news, Richard Ladley, the author of QLX modules for Unix/Windows based machines, has ported Linux/SL to the newly-released Q40 (the hardware replacement for the QL, with a fast MMQTC processor). This raises the interesting possibility that the QL itself might be able to run a QL emulator under Linux. Richard is now looking to have full QL support added to future releases of the Linux system (Linux, as named in 1991 for a Finnish university student, Linus Torvalds, who has developed it from its start in Unix to its present kernel version 2.2.0, runs on all major processors, and has become a formidable competitor to Microsoft Windows and NT); just as Pico32, this, in turn, may have the potential of creating a new market for the QL among Linux users that would enlarge its popularity base among them as well as providing QL users with a different platform for the powerful Linux OS. This would provide the best of both worlds, as well as further sources of continued availability and improvement of QL hardware and software! Since the UK does not yet use the Euro, I wrote the following little SuperBasic routine that converts pounds to US dollars. The PRINT USING command is forced to output figures that TBL is accustomed to, as is automatically done under QPC.

1. REWORK QPC ID Listing As Displayed in WTY House

```

30 CLR
40 INPUT "British pound £ to US $ conversion"
50 INPUT "\nEnter current British to U
      S rate"
60 INPUT "\nEnter currency to convert
      £":P
70 PRINT "£",P,"dollar(s) = "

```

```

80 PRINT USING"(###,##0,.##)",P*P
90 PRINT "1/4 key to repeat - CTRL
      SPACE to halt";"Press END to change RATE"
100 PAGE 1000
110 GOSUB 1000
120 PRINT "Current £ to $ rates":P;P
130 GO TO 40

```

FROM THE CHAIRMAN'S DISK ■

Donald S. Lumbert

Under the column Article Contributions on page 2 there is a box in which it states that "Send us your articles by tape or disk and your inputs to me" that has to be changed. Sometime between the newsletter, Summer '90 and Fall '90, I will be down in one computer and that will be a 238. By then I will have sent all my other computer equipment to Jack Boerwright. I don't really want to part with my 3086 P/T until pressure and a move is forcing the issue. With that and I will concern with this column.

Way back when I bought a 238 EPROM Eraser that requires an AC voltage of 220 volts someone responded with the information that a supplier had a 110 VAC to 220 VAC plug in transformer so I ordered it and it is a cute little thing. But before I got the transformer I had bought a power supply that had the ability to switch off 110 VAC or 220 VAC. So I had converted it so that it supplied 220 VAC. But that thing was a heavy and big deal. While it is not according to electronic code, I had run the 220 VAC to a standard type 110 VAC socket and put a standard 110 VAC plug on the line cord of the 238 EPROM Eraser. Today as I was cleaning and testing things I came across the EPROM Eraser and I dug out the map up transformer. I stared at the socket on the transformer and I noted that it was for a round UK type plug prongs. P/T then I noted that it had also the provision for the flat plug like on the US 110 VAC line cords. Yep it fits I presume it works since I did not test it.

I thought that a 23886 on the other computer desk had gotten continuity last night while trying a 3.5 720KB disk to 10MB disk that I discovered that drive 0 (full height 35886) drive must be bad since drive 3 (half height 10MB) drive worked all right. That 23886 will be in the next box of TS goodness that I will ship to Jack I have a flat box to send out so soon as I send it up, put the shipping label on and take it to UPS for shipment.

Now the "news" we have bought a house in Forsyth, IL. And where in Forsyth? I you take I-70 into Decatur, IL and east going south you are in Decatur but if you continue going north you are in Forsyth. Decatur is not growing and Forsyth is rather limited I think there are new houses but not located where it is easy to get to the shopping. HUT! the only enclosed mall and a lot of the stores for the area are in Forsyth. They are building all over in Forsyth. Our oldest daughter and family live in Decatur and are about 7 miles from where we are located. There are grandchildren there and the youngest is an 8th grade going into 9th next year. Looking back we have averaged bout 10 years in a house since we started buying houses.

We went to Decatur to see the granddaughter in show choir of the intermediate school. It was a long performance since they put on all their competitive stuff (we will be going back Memorial day weekend) to attend the grandson's high school graduation party and also to meet with the builder on the 1st of June (our wedding anniversary). HUT! to pick out the floating and such for the house. We painted out the sailing colors and had a work and dinner party on May 4th and the kitchen cabinets May 5th. How did we find the house? Well, we were there the week end of April 23rd and we arrived early so we were driving around Forsyth and spotted the house with workers working on the roof putting on the shingles. They invited us to take a look at the rough framing of the house and they gave us a set of blue prints. We sort of stalled about till I put the pressure on for my wife to make up her mind. So when I called on May 1st to talk to the builder we found that the house was quite a few thousand less than we had been quoted as a possible price by the neighbors.

The builder's brother was in another city 40 miles away talking to a prospective buyer and since the financing was tooiffy for that party we had a verbal agreement to buy the house. After we had gotten the house as the pricing of the 4th of May as I was relaxing they showed the tornado damage in Oklahoma. Yet! we will have a basement! I looked on the map and Old Parrish is not too far west of that area I don't think he got any damage.

I realized that this is not too much about Tiling but it will explain my lack of input and my address change. I have an address but I will hold that off in recording it and find out more about the move with a transition date of August 1st this year. Right now we are in the throes of getting the house here ready to sell and packing, moving and disposing of extra stuff or no longer wanted stuff.

It is about 110 miles one way and it seems longer especially with 1-74 having a lot of construction west of Indianapolis to the IL border w/o

poorly
and part that modern paperless entry option already
of the power of an era with auto number entry
the just released the HUT! series
of personal books could have driven these books
other books already have been introduced. While the
process would not have happened if the
books would have happened if the

Font Loader in HiSOFT Pascal®

Article and Programs by David Solby

One of the strengths of the Tandy/Sinclair 3000 is its ability to change its screen font through the use of user-defined fonts. As a programmer, you may want to change the display font a program uses for several reasons. A banking or financial program, for instance, would require that you use a font in which no one can possibly mistake a letter like "d" for the number one. To better set the mood of a game set in the Middle Ages, you may wish to use a Gothic font. Likewise, a game set in outer space may require a futuristic looking font. Perhaps you want your TSI 3000 to display text in Greek or Russian. In that case, you have to change the entire character set as well as the font. (To the confusion of many computer programmers and technical writers used to use "font" to mean either a "font" or a "character set". Be aware that the program I am about to describe can be used to change both.)

Font loading and conversion is much easier in HiSOFT Pascal, (hereinafter Pascal), than in BASIC for the following reasons:

Firstly, you don't have to make any changes to RAM_TOP. To prevent BASIC programs from overwriting a user defined font, the usual practice is to lower RAM_TOP and load the font into the protected area created above. In Pascal, a global array *y* which is also a static array *y* is used to reserve space in RAM into which the font is loaded. Pascal keeps track of such arrays and prevents them from being overwritten by any of its operations.

Secondly, you don't have to worry about where in RAM the font file is loaded. The function ADDR(y) can be used anywhere in a program to locate the start position of any variable the program uses. Even if you should make modifications to your source code which changes the location of a given variable within the compiled program, ADDR(y) will still be able to locate it.

Finally, you are relieved of doing and reading the calculations needed to determine which values to put into the system variable CHARS to activate the new font. Once ADDR(y) has been used to locate the start of the variable being used to store the font, all you program is required to do is to invoke the POKES(y, 0) procedure to transfer the value less 256 bytes to CHARS, then POKS(256, ADDR(y)-256), and your new font becomes active.

There are already five screen programs available written in BASIC. Most of them save the fonts they create as a type file of TIF type. Below is a demonstration program written in Pascal that contains source code which will allow you to load and activate these fonts within a Pascal program.

PROGRAM FontLoader;

!

Special note to HiSOFT Pascal 1.7x users:

This program must be compiled on 32 column mode.

256 QBasic Level

1)

CONST

Chars = \$3000;

(Chars holds the address of the system variable CHARS which in turn points to the location either in ROM or RAM where the current font is located. The value stored in CHARS is always 256 bytes less than the actual start location of the current font.)

VAR

CharSet : ARRAY [0..7FF] OF CHAR; {Reserve space in RAM for the new character set!}

(Remember: CHAR takes 1 byte, therefore takes 2 bytes)

FilName : ARRAY [1..12] OF CHAR; {An array FWS holding the file name of the font to be loaded!}

StartAddr: {We hold the start address of the new font!}

i : {A loop counter! INTEGER;

MAIN (MAIN PROGRAM)

CLS; {Clear the screen!}

WRITEM(What is the name?);

READLN('of the font to load?');

writeln;

writeln(' ');

READLN (Required in 1.5 Pascal);

READ(FilName);

{Read in the font!}

TIN(FilName, Addr(CharSet));

StartAddr := ADDR(CharSet);

{Take location of new font}

late the system variable CHARS

POKE(Chars, StartAddr - 256);

{Print the new font from space to

ORG-E}

FOR i := 32 TO 164 DO

Begin

 WRIT(EHR(i), ' ');

END;

WRITEM(What?);

{Add font save code here if required!}

WRITEM('End of test');

END.

A special note for ZX Microdrive users:

For some reason the Pascal font loader will only load fonts that have been saved on tape. Trying to load font files which has been saved to the Microdrive from BASIC will

generate an "invalid file format" error report. If you wish to use the Microdrive to load in a new file, you can, but then you must create a special kind of file file from within a Pascal program for each file and save it on the Microdrive.

First, add the following lines in the source code to the open statement in the main program and reverse. Then recompile and save the new file loader/pascal program. (Save file *readme*)

```
WRITELN('Enter a name to save');
WRITELN('the file to use');
INCRDRIVE?';
WRITELN('112 characters packed');
WRITELN;
WRITELN(');
READLN; {Required in MS Pascal};
READ(Filename);
{Save the file}
DOUT(Filename, ADDR(Chart));
$220 (CharSet) $11;
```

Next, if you do not have your character sets saved on tape already then using BASIC you will have to load them back from tape and save them out & and here I would strongly suggest using a new cartridge (in the Microdrive) where your character sets are ready for you any time you wish to use them in a Pascal program.

Once you have your font that saved on tape then you can use the Pascal font loader/source program to load them back from tape and save them out & and here I would strongly suggest using a new cartridge (in the Microdrive) where your character sets are ready for you any time you wish to use them in a Pascal program.

The source code for this program is available upon request by sending e-mail to David Solly at g223@jifex.ca. Source code is saved as an "M65" file which is compatible with Gorilla Lander's Z80 ZX Spectrum emulator.

West Coast Sinclair Show

by Tim Firthman, the show organizer

The West Coast Sinclair Show was held in Union City, CA, on 5 June 1989, one week after the East Coast Sinclair Show. Most of the European attendees arrived the Monday before the show and spent the week visiting San Francisco.

The day before the show was by far the QL at my house. Before the show a trip was made to a local regional park up above the Francisco's little bit of California coast. Luckily the ride up was enjoyed by all.

The attendees at the Bar-B-Q were Simon Goodwin and his girlfriend Chen Lyne, Tony Firthman, Ray Ward, Judson Mays, Marcel Elkins, Dennis and Lisa Fisher, Ben Hartman, Dan Wilesman, John Reid and Paul Butterwight. An amazing full, Simon, Chen, Tony, Marcel, and I hopped in the Fiat 126 for a bit of a road.

The day of the show I loaded up the excess weapon QL stuff, picked up a few folks at the local Model and headed for the venue.

At this was the first show I've organized, I was not too sure on how big a place to get. The result is, shall we say, nice and roomy. There was enough room for the vendors, but not really enough for a lot of walking about.

The vendors were - Tony Firthman with his ever growing QL controlled LIQUID robot, Ray Ward displaying software on a QL80, Judson Mays and Marcel sharing a table with their wives. Jack Butterwight was selling the last of the staff from XMAS (John Reid the sole US QL 256 dealer) had nearly 200 staff on his table. Dan Wilesman had a Spectrum 128 set up for all to see. Simon Goodwin being on a QL (out of town) that had been given to

BEATING THE HIGH PRICE OF PRINTER INK

Edwin

So you got a good deal on that ink-jet printer only to find out later that the cost of buying new cartridges is breaking the bank. Each cartridge costing between \$10 to \$15 and producing at most 300 pages. It is easy to spend over the cost during your first year of ownership than you paid for the printer itself. Suddenly that \$29.95 - \$149.95 color ink jet doesn't look like such a good bargain.

You can slash the ink cost radically by purchasing refill kits from various suppliers who sell those kits for various ink-jet (BubbleJet) printers like Canon, Epson, HP, Lexmark etc. for around \$12 per ink bottle that is good for 14 refills on my part.

My kit included .8 oz of ink, a syringe and a little hand drill with abrasives.

You make a hole in the cartridge with the little drill, then using the syringe, you inject the resin/solvent mixture into the cartridge - doing that over the sink or a newspaper - just in case! It is almost like getting ink the old



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sysop looking for a new home, by a QLer who had upgraded to a Mac.

Eve Harber drove from Fresno to pick up some T15 2048 stuff and word processor with one of the explained QLs. Bill Miller and Terry Griswold (members of the Fremont QL Group) made a surprise visit to the show.

The key vendor to the show was the unassisted author Stan Kelly-Brown, writer of many computer books, including the "David's QL Dictionary" and the holder of the first post-graduate degree in Computer Science (from Oxford).

Simon Goodwin has been a reader of Stan's work for a number of years (he loves it) and considers him one of the few that hasn't really mastered the English language. When I mentioned to Simon that Stan was missing in the show, Simon's jaw literally dropped. Simon got up to spend a few hours chatting with Stan, making the whole scene.

There was no organized demonstration or talk, just a whole lot of random talk going on. Since I was the organizer, I was not really relaxed enough to truly enjoy the show.

"When the show ended at 10:00 there was a debate on where to have dinner held. Originally, Tony and Ray were leaving for the Airport right after the show. Unknown to me, their flight was delayed 4 hours and they had time for dinner after the show. Luckily everyone agreed on a place for dinner and the attendees easily handled a group of 13.

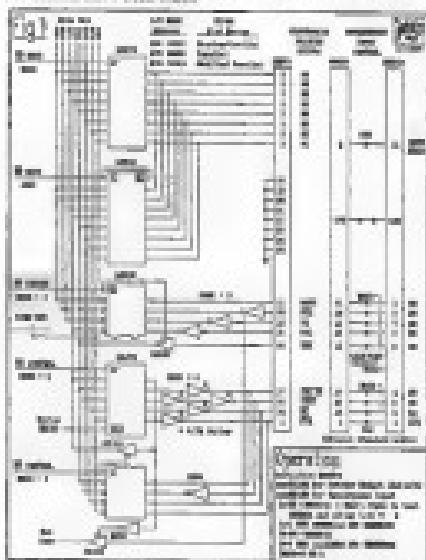
"We are calling about plans for next year. We have just discovered a local "Vintage Computer Show" that would be the right audience to advertise on there. Hopefully we can generate more local attendees next year."

Improved TS-2068 Internal ROM Bypass I

By the late William Pedersen, W6QJF

A major factor in fixing the problems in INTERNAL ROM is ease of access. Even though the ROM is located you still have to open the case. This risks damage, and even then, replacing ROM with EEPROM requires using modifications. This article shows how to replace HOME ROM and EXROM without touching a screw.

It is not necessary to replace ROM with EEPROM. Battery backed up static RAM will do as well if equipped with a ROM ONLY switch. That way the RAM can be written and then switched over to write-protect mode. The savings in time over buying EEPROM is impressive; however, you will probably elect to use EEPROM once connections have been made.



When expansion banks are connected, they assume priority by driving the RII (RII Enabled) signal line (using open collector gates). This is applied at the rear connector and sensed by the SCLD, which then shuts down all LOCAL memory (except for display memory which it is using). It releases ROMCS, EXROM and ROMCS signals which enable ROMC (counting), EXROM and HOME ROM (memory chips), respectively. ROMC and EXROM are not the expansion banks in the sense that they have lower priority than external BANK #0 and #34. The "missing" three banks in TIMEX documentation are not really missing at all. The much-quoted RIIU would have controlled a new operating system using them.

The design presented here has very carefully removed the ability to attach a non-TIMER ROM with expansion slots — or any other system your heart might desire.

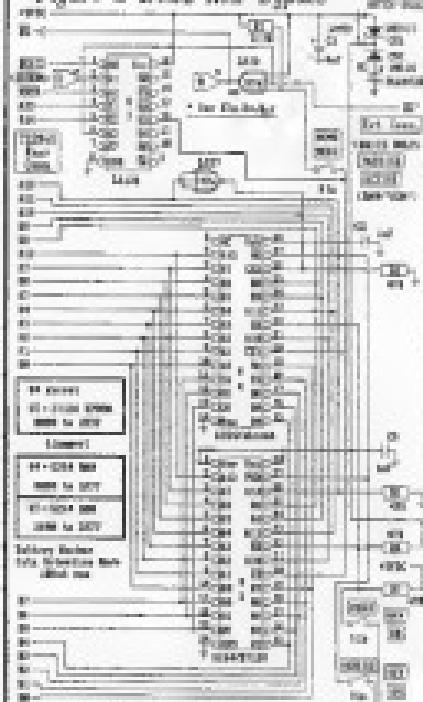
Many users will not initially have a back-plane with

expansion slots. The preferred location for ROM bypass would seem to be the cartridge slot, however, locating a three-pin diode + bus which involved RII signal conflict on rare occasions.

Home ROM Bypass

Home ROM is enabled by the SCLD using a signal named ROMCS. Unlike EPROM and ROMCS, this signal is not available externally.

Figure 1: HOME ROM Bypass



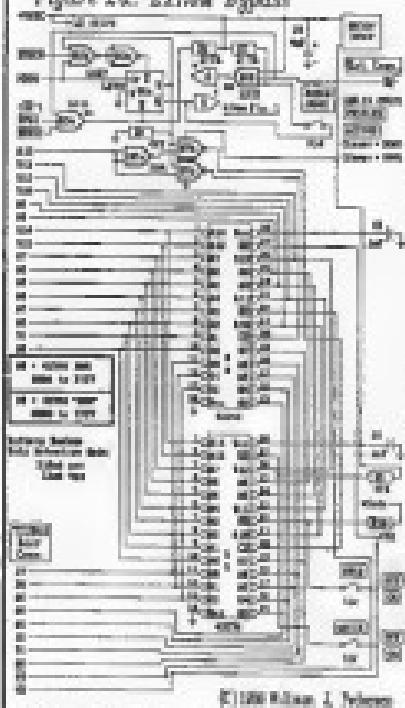
- 1 RDREQ is low (DQCK bank addressed).
 - 2 MRDREQ is high (NDF, DQ or INTERRUPT CYCLE).
 - 3 BE is low (Expansion bank active).
 - 4 RD is high (Write cycle in progress) or
 - 5 RPFSH is low (Applies to some static RAMs)

Before attempting operating system revisions, a copy of existing code can be used in the bypass. This is an excellent test of bypass circuitry. No change in operation should be detectable when a bypass card is present, or absent.

Microsoft Visual Studio 2005

CARM presents an interesting problem. It is enabled by the CARM signal (not BANK #254), but lack of complete internal address decoding results in false compare occurring in all other banks, not just CTRNG #0 if we had an expansion BANK #254, it would have higher priority than the current chip — but that requires a bank switching controller and creates a bottleneck.

Figure 1: Survey Results



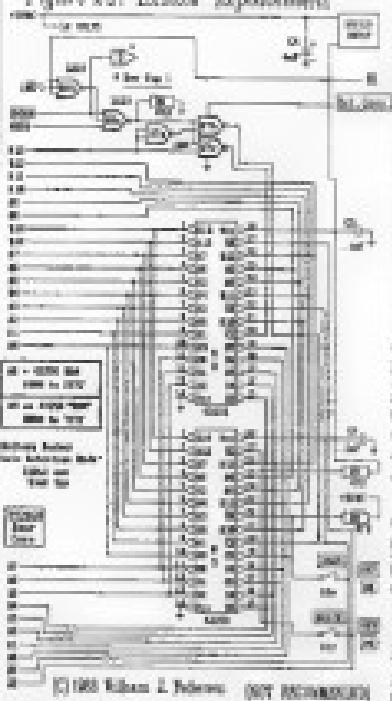
The simple solution is to physically remove the SCORUM chip from mask and rework it with full address decoding on a board. Though it is necessary to open the chip, no wiring changes are needed and the chip can always be put back.

A 10-year study on aged mice has shown that a diet containing 10% of the energy as sucrose can increase the life span by 10%.

The five stages are gone, making seven CHUNKS of EEPROM available for use as either RAID or EEPROM as desired. Again, this can be tested for no change in operation before and after the changes.

Figure 2b is a greatly enlarged view of the which allows

Figure 2b: ATBW Business



Финансы

Lasting a full tracking cascade, it would seem imprudent to use the BE signal to disable the internal EXOR441 chip and still have an external bypass take over. The presence of the EXOR441 signal from the SCIO would try to cancel itself resulting in oscillation.

If the usual presence of TD080M signal can be checked on the bypass board, and then RD is switched low, the can be avoided.

Now we have a way to bring those power projections

We used to repeat the Irish before the next instruction comes along, when an external task starts promptly, at `POWER-ON` and `RST#F0H`.

The extra cost of a safe approach might make the risk in conserving the EXCERED step team work while that is what Figure 2b is for.

This is not recommended unless you are a certified hacker!



John Thomas	Heiko	Andreas	Ulrich	Thomas
Hermann	Detlef	Peter	Uwe	Ulrich
Frage	Stoer	Michael	Hans	Thomas
	No.	Guenther	Hermann	Ulrich
		Wolfgang	Ulrich	Ulrich

Z

X

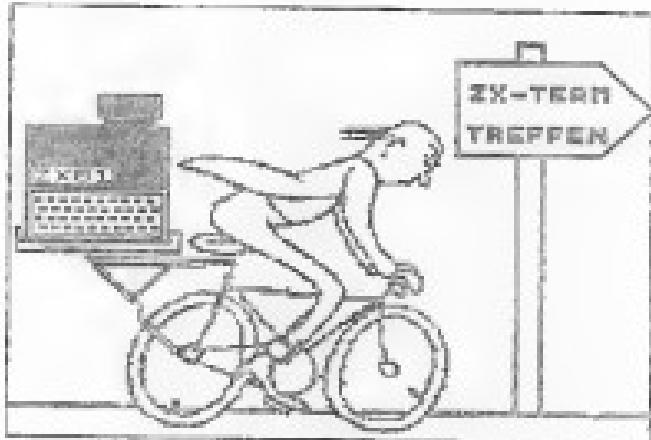
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For our english readers:

The third ZK-TEAM meeting 26-28 march in Ditzingen was a great success. we had 32 participants. 21 of them stayed over night in our "hostels". a lot of ZK-projects could be demonstrated. All new and a big lot of some older of our developments could be seen in action.

Hand-held cameras with MEFISDOS, LCD-screens, hand-scanner, ZK-CAU and much much more. The ZK@-mailbox demonstration from Gernot was a great success!

New projects have been discussed like a SMD-ZK or the Japan+Asia project. On the framework everyone could find some good bargains!

For more information and some photos please look at ZK-TEAM/homepage, mailingpages: mailto:t-koenig@zv.uni-stuttgart.de, <http://www/t-koenig/zk-team.htm>. If you would have liked to participate, please do not be too sad - the next great ZK-TEAM-meeting will be in spring 2000. You are welcome! t-koenig@zv.uni-stuttgart.de

peter@zv.uni-stuttgart.de

How to Hack on The ZX Spectrum

Les Cottrell

Part 6 - cont.

```
CC94 3E CD LD A, #C0
CC95 23 29 00 LD H, ($5800),A
CC96 21 01 CD LD H, #C0LJ
CC97 23 23 00 LD ($5800),A
CC98 03 00 00 ST $5800
```

The puts the instruction #H(C0LJ) at #5802 so the loader decryptor will switch to our code at #CC91 when finished.

```
CC91 23 02 CD LD H, #CC03
CC92 23 03 00 LD DE, #5803
CC93 01 00 00 LD H, #5803
CC94 00 00 00 LD H, #5803
```

This copies the final part of our hacking routine to #5803, where it will be executed once the whole game has been loaded.

```
CC95 21 00 00 LD H, #5803
CC96 03 00 00 ST $5803
```

The LD H, #5803 instruction is important, because it's the instruction we encounter with our IF back to the back. Therefore, we've got to execute it, otherwise the loading system may crash. That is, it resumes loading at #5803 with the POKE already in place.

```
CC97 3E FF LD A, #66
CC98 32 2F AD LD H, #58071,A
CC99 03 FC F6 ST #5807
```

This is the hacking routine which will be copied into the loading system. AD#5807 is the POKE for infinite lives (which can be worked out by a forwards or a backwards trace), and IF #5807 jumps to the game.

And that's about it for Shovelload. Hopefully, if you were hacking a different game, you still managed to do it (they're all basically identical anyway).

ULTIMATE LOADER

Remember Ultimax? They were one of the first software houses of all time. Most of their games from 1983 to 1987 had the same type of loader (but a few were Specialised - more about them later). On the face of it, it just looks like a totally unpatched BASIC loader, but the appearance is deceptive. The first blocks of loads are the loading screen, the game itself, a decryptor at #5800, and two very short blocks of system variables. The system variables are, in actual fact, the BASIC code, and determine how many 56ths of a second the computer has been initialised for. The decryptor works using the system variable. The update of all this is that if you stop the program for even 1/56th of a second, you'll mess up the decryptor. You can get round this with a Multibus by loading in the first three blocks of code, then replacing the code at #5800 with #FD, #FF, and #FE. This causes catastrophic, so the system variable doesn't get updated, and causes an endless loop. Load on the last two blocks, correct the Multibus, and find out what the system variable should be. Then you can put that into the decryptor automatically.

MICRO-GEN LOADER

The loading system appeared on just about every game released by the software house Micro-Gen (oddly enough!) from about mid-84 to their demise in 1987. They came in two varieties, and you'll need a Multibus to hack

some of the later ones, unfortunately.

The first type are recognised by black and white loading screens, which loads in a screen block, and then the main game block separately. I'll be doing Pyramids as an example, but any Micro-Gen game which fits the above description will do.

```
LD A, #5800
PULLDOWN: LDIR 0 LDH 504
D BORDER T:PAUSE 7:LDH 0:DPLC7T
PULLUP: LDIR 0:LDH:PRINT AT
    13, 12;"LOADING":PUSHDOWN USR 1784
    23627+256:POKE 23756, 0:POKE 23757, 0:GATE
    *PULLUPMAIN: LDIR 0:RANDOMIZE
    USR 33049
```

The BASIC loader actually features much more than what we can see. If you're old enough to remember the ZX-81, you'll recall that the best place to put a machine code programme is in REM statement. And that's almost the case here, except the machine code comes after the BASIC code itself (PULLLINE) so you can't use it. But it's there it's accessed by the RANDOMISE 1784 command. Type PRINT (PEEK 23627+256)*POKE 23627+6) and you'll find out the start address of the code. I made it 23844, which is #5808 hex (and you might find it to be something different), no checksum this address.

```
2380 F3 31
2381 31 00 00 LD SP, #5800
2382 29 00 00 LD H, #5800
2383 11 10 00 LD DE, #4001C
2384 1B ADD HL, DE
2385 11 10 00 LD DE, #4018
2386 01 E7 00 LD BC, #0007
2387 ED 00 LDH 504
2388 C3 14 F1 CP 5816
```

Hopefully the (H and the LD SP,#5800) should be familiar. The next has load HL with the two byte value starting at #5808. I made it 23844. This then has BC added onto it, making it #5809. The rest of the code is a simple LDH command, which puts the loading system to where it should be.

In our back, we can simply use a borderless loader to load the code into place. We know that #5808 goes to #5809 BASIC always starts at the value in #5809, which is #5800 in this case. We know that the length is 184, or #FF hex bytes long, and the start address is #580CD. #580CD+184= #5811B So, run the following routine:

```
5800 DD 21 1B ST LD IX, #57F1B
5801 11 FF 01 LD DE, #57F1F
5802 32 FF LD H, #57F1F
5803 37 ST RET
5804 CD 34 00 CALL #58556
5805 30 71 JR NC, #5800
5806 C9 RET
```

I've put a JR NC, #5800 in, so that the computer ignores the BASIC header, and will only return on loading the main BASIC block. You should also note, that in the final hack, we'll have to add a DD and a LD SP,#5800 command. For now, disassemble #5811B

```
#5811-BD 21 1B 40 LD IX, #57F1B
```

```

#DCA 11 D1 1B LD ($K, #$800)
#DCA CD 4F 80 CALL #8004F
This code initializes the turboloader, which loads the main
routine.
#DCA 21 E0 40 LD HL, #$8000
#8003 C1 80 1B LD BC, #$1000
#8006 CD 3F 80 CPAL #8003F

```

This code verifies that the screen has loaded in properly (the routine at #8003F sets up all the memory with start HL and length BC, and compares it with the bytes after the block), and resets the computer if it hasn't.

```

#DCA 20 21 80 80 LD HL, #8003F
#DCA 11 80 70 LD DE, #1A00
#DCA CD 4F 80 CPAL #8004F
#DCA 21 80 80 LD HL, #1A00
#8003 C1 80 70 LD BC, #1A00F
#8006 CD 3F 80 CALL #8003F

```

This is exactly the same as with the previous code, except it loads and checks the main game instead of the loading screen.

```
#800C C3 1B FC JP #PC013
```

Put a breakpoint over this instruction. Now POKE #8012 with \$11, #8013 with \$10, #8014 with \$00 and #8015 with \$00 (because we didn't execute the D1 LD SP, #80000 from the BASIC loader), and the game will not load otherwise. If #8012 and skip the tape. When the main game's loaded, disassemble #PC013:

```

#C80 21 80 84 LD HL, #80-4F
#C80 11 00 40 LD DE, #4000
#C80 40 00 1B LD BC, #1000
#C80 1A LD A, #10
#C80 A0 RDR DE
#C80 21 LD (HL), A
#C80 23 DEC HL
#C80 13 DEC DE
#C80 0B DEC BC
#C80 70 LD A, B
#C80 D1 OR C
#C80 20 FE JR HL, #PC010
#C80 C3 EA PK JP #PC02A

```

This decodes some values in the screen memory, so you'll have to put a breakpoint at #PC010, put a JP #PC010 at #PC02A, JP to #PC013 and reload the loading screen before you can run it. Then disassemble #PC010.

```
#E80A 21 00 80 LD SP, #80000
#E80D C1 C0 80 CALL #800CC
#E80F C3 00 82 JP #80300
```

This code puts the stack pointer back at #80000, CALLs another decrypter, and JP to #8005, which is the start of the game. Change the #80300 to a suitable place to put #PC010, then flush with a JP #PC02A to start the game. Here's the final hook, and I've put it at #80000, because it doesn't get overwritten, apart from the byte at #80000 itself, which is no longer needed by that time. Also, I've extracted the D1 LD SP, #80000 directly, as well as the code from

```
#E80A to #PC02A
#8000 CD 21 1B 7F LD DE, #7F10
#8004 11 F0 01 LD ($K, #C1F8)
#8007 20 F0 LD A, #FF
#8009 97 SCF
#800A CD 5e 00 CALL #80054
#800B 30 F0 JR NC, #80000
#800F 21 1C 80 LD HL, #8001C
#8022 20 3D 80 LD ($8000D), HL
```

```

#8010 F0 20 LD SP, #80000
#8010 30 00 00 JP #8011B
#8010 C3 14 80 LD HL, #80020
#8010 31 70 80 LD BC, #80020
#8010 21 80 FC LD #PC03D0+HL
#8010 C3 99 FC JP #PC038
#8025 30 00 00 LD SP, #80000
#8025 C0 CD BE CALL #800CC
#8028 AF 0000 A
#802C 32 17 FF LD ($FFFF), A
#802F C3 DD 80 JP #80200

```

The other type of Micro Gen loader is almost identical, except the whole game loads in one long block. The end of the BASIC loading system is missing to start with, and is only loaded right at the end of the main headerless block. You can find out the missing code by loading the game as normal, then stopping it with a Multiface at the pause between the game loading, and the game starting (approx. 3 seconds), and hook it in the same way as Pyramus.

POWERLOAD

The protection routine appeared first around the start of 1984, and was written by "Tag" (Phil Taghveid) for Innovative Software. However, it's been used by quite a lot of other software companies as well, including Beyond, Microview, Prism and Amicoed. It can be recognized by the screen turning black, accompanied by a few sounding beeps. It then loads one short headerless block, and then a longer headerless block, which includes the address file for the game setting up "bookends" i.e. right to left, starting from the bottom. The game also maps loading just before the end of the long headerless block.

The only thing I know of that VICE has put on the envelope that has Powerload is the Gingko Adventure Create, but that's pointless hooking, so instead I'll be hacking Dynamic Disk. Of course, most other Powerload games are deployed from some address, and, at least, the BASIC loaders are all identical.

Before we start, I need to explain a little more about the stack, because Powerload uses it a lot. There are four commands which use the stack, and they are:

PUSH X (where X is any register) this takes the value in a register, and puts it onto the stack. The stack pointer then decreases by two (to be in the right place to store another value).

POP X

this takes the two byte value at the stack pointer (i.e. the top of the stack), and puts them in a register. This also increases the stack pointer by two.

CALL XXXX

when a RETT instruction occurs, the computer takes the value on the top of the stack, and JP to it. The stack pointer increases by two.

Now we're cleared that up, let's start hacking. Which the BASIC version!

```
D.B. 1100 C 1007 494
C ROM
```

```

10 CLEAR #9999:POKE 23480,0:POKE
23624,B:POKE 23697,0:CLRLINE
13631,2:POKE B-30 TO 30:BEEEP
,670,X,WERT M,TRANSMITTER WER
24144,1:RANDOMIZE 0000
100:BEEEP

```

The POKEs in line 10 just make the screen black and prevent you from pressing break. 24144 is #4922 hex, but a breakpoint at #5E22 and #5E70 to 0. This is because the stack is set up in a specific way by the BASIC commands.

```

5E22 23 DD ST LD HL, #5E22
5E23 21 DD CS LD HL, #5E22
5E24 39 ADD HL, SP
5E25 22 F2 50 LD (5E22), HL

```

This code simply puts the value of the stack pointer into address #5E22, so it can be referenced later:

```

5E26 31 95 5C LD SP, #5E22
5E2D 26 9B LD H, POKE
5E2F 85 PUSH HL
5E30 21 68 9C LD HL, #5E22
5E31 20 79 (HL)
5E32 31 19 9D LD A, #12
5E3A 33 93 53 LD (5E22), A
5E3B E1 POP HL
5E3C E5 PUSH HL
5E3F D0 POP DE
5E70 CB RET

```

Put a breakpoint at #5E70 and IP to #5E22. At #5E70, the value on the top of the stack is #5E22, so a RET with IP = address

```

5E70 C1 POP BC
5E71 7E LD A, (HL)
5E72 ED 44 NEG
5E73 73 LD (HL), A
5E74 23 DEC HL
5E7C 10 FF DNAME $5E22

```

This code is, as you might realize, a descriptor. The start value of HL is #5E12, and the initial value of B is #1A. In case you're interested, the HLLG command turns the value in the A register into its negative form, in other words, the value in A is subtracted from #100 hex. Put a breakpoint at #5E7C and IP #5E70 (which is where we left off):

```

5E7E E1 POP HL
5E7F 22 78 5E LD (5E270), HL
5E82 C1 POP BC
5E83 3C CP LD A, R00
5E85 32 7E 5E LD (5E270), A
5E86 3E 00 LD A, #00
5E88 32 7A 5E LD (5E270), A
5E89 5B PUSH DE
5E90 E1 POP HL
5E9F CF RET

```

This code changes the previous descriptor slightly, and RETs to #5E77 (Put a breakpoint at #5E7F and IP #5E7E):

```

5E77 1E LD A, #10
5E79 ED 67 NEG
5E7A 2D POP DE
5E7B 23 INC HL
5E7C 10 F3 DNAME, #5E77
5E7E CF RET

```

This code works with the same values as the previous one, HL=5E12 and B=1A. It then RETs to #5E12. Put a breakpoint at #5E7E, and IP #5E77 (where we left off last time):

```

5E22 23 DD ST LD HL, #5E22
5E23 21 DD CS LD HL, #5E22
5E24 39 ADD HL, SP
5E25 22 F2 50 LD (5E22), HL
5E26 E1 POP HL
5E27 24 LD B, H
5E28 8D LD B, L
5E29 DC INC B
5E2A C1 POP BC
5E2B ED 80 LDHL

```

These two LDHL commands wipe all the memory that isn't being used by the loading system. To get around this, you should change #5E12, #5E1C, #5E22 and #5E23 to #00, so they don't keep executing. Put a breakpoint at #5E24 and IP #5E77 (where we left off):

```

5E24 26 1E LD B, #1E
5E26 E1 POP HL
5E27 7E LD A, (HL)
5E28 23 83 LD B, #03
5E2A 77 LD (5E17), B
5E2B 30 NC HL
5E2C 10 FF CALL #5E27

```

The value in HL for the descriptor is #5E22, which is right after the descriptor. To reset it, therefore, move the code from #5E24 to #5E2D somewhere safe (such as #5E40), put a breakpoint on the end, and run the code from there. When it's done, put a breakpoint at #5E2E and IP to #5E22 so that you're back in the right place in the loading system.

Carrying on with the loader:

```

5E2E E1 POP HL
5E2F 22 02 5E LD (5E280), HL
5E30 E1 POP HL
5E31 22 03 5E LD (5E280), HL
5E34 37 INC
5E35 2E 07 LD A, #07
5E36 CD 00 5E CALL #5E20

```

This code takes some values off the stack, and puts them into the subroutine at #5E20, which is then CALLED. Put a breakpoint at #5E29 and IP to #5E2E:

```

5E29 ED 21 40 9C LD DX, #9C40
5E30 11 80 1 LD DE, #9C
5E37 14 INC D
5E38 08 IX AF, AF
5E39 11 DEC D
5E3A 1E OF LD A, #0F
5E3C 10 95 OUT #F0, A
5E3D C9 93 93 CALL #5E22
5E3E CF RET

```

The routine is a headerless loader. The start is #9C40 and the length is #100. Also the value of A is 1, and the carry flag has been set. In effect, we could have used a standard CALL #5E22 headerless loader. Put a breakpoint at #5E3C and IP to #5E2D. Start the tape and load in the first short headerless block. Then continue troubleshooting:

```

5E3C D9 01 00 JP NC, #5E2D

```

This code raises the computer if there was a loading error from the first headerless block:

```

5E37 21 40 9C LD HL, #9C40
5E41 08 F7 LD B, #FF
5E44 CD 77 5E CALL #5E27
5E47 06 F7 LD R00
5E49 CD 77 5E CALL #5E77 (to be assumed)

```

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